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National Marine Fisheries Service
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# Tuna Newsletter

**National Marine Fisheries Service**
- Southwest Region
- Southwest Fisheries Science Center

**May 1994** **Issue 113**

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# U.S. TUNA STATISTICS

*Editor's note: The following articles were prepared by NMFS personnel from data and information gathered from sources in the U.S. tuna industry and government.*

## U.S. CANNED TUNA INDUSTRY HIGHLIGHTS, FOURTH QUARTER 1993

Total receipts of tuna by U.S. canners during the fourth quarter of 1993 (October-December) increased by less than 1% to the equivalent of 124,000 short tons (st) of whole fish (round weight), compared to the fourth quarter of 1992 (Table 1). The principal species received was skipjack tuna with 54% of the total, followed by yellowfin tuna and albacore, with 24% and 22% of the total, respectively. Yellowfin tuna receipts were up by 59%, while skipjack tuna and albacore receipts were down by 14% and less than 1%, respectively.

Receipts for all four quarters of 1993 totaled 454,500 st, a 3% decrease from the previous year (Table 2). Yellowfin tuna receipts were up by 8%, while albacore and skipjack tuna receipts were each down by 5%.

Although the vast majority of tuna received by U.S. canners is whole fish, some quantity is received as loins or gilled-and-gutted. The ratio of tuna loins to total receipts for the fourth quarter of 1993 was 10%, compared to 6% for the fourth quarter of 1992. Receipts of tuna loins for all four quarters of 1993 totaled 27,600 st, down by 2% from the previous year. (The round weight

**Table 1.** Total U.S. cannery receipts (st) by species for the fourth quarters of 1992 and 1993. Totals may not add due to rounding.

| Oct-Dec | Type | Albacore | Skipjack | Yellowfin[1] | TOTAL |
|---|---|---|---|---|---|
| 1992 | ROUND | 27,600 | 63,200 | 16,000 | 106,800 |
| | GILLED & GUTTED | 0 | 0 | 600 | 600 |
| | LOIN | * | 6,200 | 1,000 | 7,200 |
| | TOTAL (as received) | 27,700 | 69,400 | 17,600 | 114,600 |
| | TOTAL (estimated round wt)[2] | 27,700 | 77,100 | 18,800 | 123,600 |
| 1993 | ROUND | 27,600 | 49,000 | 21,300 | 97,800 |
| | GILLED & GUTTED | * | 0 | 1,300 | 1,300 |
| | LOIN | 0 | 7,900 | 3,100 | 11,000 |
| | TOTAL (as received) | 27,600 | 56,800 | 25,700 | 110,100 |
| | TOTAL (estimated round wt)[2] | 27,600 | 66,600 | 29,800 | 124,000 |

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 2. Total U.S. cannery receipts (st) by species for all four quarters of 1992 and 1993. Totals may not add due to rounding.

| Jan-Dec | Source | Albacore | Skipjack | Yellowfin[1] | TOTAL |
|---|---|---|---|---|---|
| 1992 | ROUND | 104,800 | 226,500 | 69,800 | 401,100 |
| | GILLED & GUTTED | 0 | 0 | 2,600 | 2,600 |
| | LOIN | * | 19,800 | 8,400 | 28,300 |
| | TOTAL (as received) | 104,900 | 246,300 | 80,900 | 432,000 |
| | TOTAL (estimated round wt)[2] | 104,900 | 271,000 | 91,700 | 467,600 |
| 1993 | ROUND | 97,900 | 212,700 | 78,400 | 389,000 |
| | GILLED & GUTTED | * | * | 3,100 | 3,200 |
| | LOIN | 700 | 19,400 | 7,400 | 27,600 |
| | TOTAL (as received) | 98,600 | 232,100 | 89,000 | 419,700 |
| | TOTAL (estimated round wt)[2] | 99,500 | 256,400 | 98,600 | 454,500 |

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 3. U.S. cannery receipts (st) of domestic and imported tuna by species for the fourth quarters of 1992, 1993 and the recent (1988-92) fourth quarter averages. Totals may not add due to rounding.

| Oct-Dec | Source | Albacore | Skipjack | Yellowfin[1] | TOTAL |
|---|---|---|---|---|---|
| **AMERICAN SAMOA & CALIFORNIA** | | | | | |
| 1992 | DOMESTIC | 1,600 | 29,600 | 7,100 | 38,400 |
| | IMPORTED | 7,600 | 6,200 | 1,700 | 15,500 |
| | TOTAL | 9,200 | 35,800 | 8,900 | 53,800 |
| 1993 | DOMESTIC | 2,600 | 26,700 | 6,500 | 35,800 |
| | IMPORTED | 6,200 | 9,300 | 6,000 | 21,500 |
| | TOTAL | 8,800 | 36,000 | 12,500 | 57,300 |
| 1988-92 Average | DOMESTIC | 500 | 23,500 | 10,000 | 34,000 |
| | IMPORTED | 5,200 | 8,700 | 4,200 | 18,100 |
| | TOTAL | 5,700 | 32,200 | 14,200 | 52,100 |
| **PUERTO RICO** | | | | | |
| 1992 | DOMESTIC | 300 | 21,200 | 3,800 | 25,400 |
| | IMPORTED | 18,100 | 12,400 | 4,900 | 35,400 |
| | TOTAL | 18,500 | 33,600 | 8,700 | 60,800 |
| 1993 | DOMESTIC | * | 3,500 | 4,100 | 7,600 |
| | IMPORTED | 18,800 | 17,300 | 9,100 | 45,200 |
| | TOTAL | 18,800 | 20,800 | 13,200 | 52,800 |
| 1988-92 Average | DOMESTIC | 500 | 10,600 | 9,300 | 20,400 |
| | IMPORTED | 17,000 | 10,100 | 8,500 | 35,600 |
| | TOTAL | 17,600 | 20,700 | 17,800 | 56,000 |
| **TOTAL** | | | | | |
| 1992 | DOMESTIC | 2,000 | 50,800 | 10,900 | 63,800 |
| | IMPORTED | 25,700 | 18,500 | 6,600 | 50,800 |
| | TOTAL | 27,700 | 69,400 | 17,600 | 114,600 |
| 1993 | DOMESTIC | 2,600 | 30,200 | 10,700 | 43,400 |
| | IMPORTED | 24,900 | 26,600 | 15,100 | 66,600 |
| | TOTAL | 27,600 | 56,800 | 25,700 | 110,100 |
| 1988-92 Average | DOMESTIC | 1,100 | 34,100 | 19,300 | 54,400 |
| | IMPORTED | 22,200 | 18,800 | 12,600 | 53,600 |
| | TOTAL | 23,300 | 52,900 | 31,900 | 108,100 |

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

totals used above were approximated by converting weights of loins and gilled-and-gutted receipts by factors of 2.25 and 1.11, respectively. For the remainder of this article, unconverted receipts are used unless otherwise stated.)

Receipts of tuna in American Samoa and California for the fourth quarter of 1993 were up by 7%, compared to the fourth quarter of 1992, with increases in skipjack and yellowfin tuna receipts more than offsetting a slight decrease in albacore receipts (Table 3). Total receipts in Puerto Rico were down by 13%, primarily due to a 38% decline in skipjack tuna receipts.

Total domestic deliveries to U.S. canners in 1993 decreased by 3%; imported deliveries also decreased by 3% (Table 4). Skipjack tuna was easily the largest component of all domestic deliveries at 156,200 st, while albacore was the largest import component at 91,100 st. Domestic deliveries accounted for 50% of the tuna delivered to U.S. canners during 1993.

Skipjack tuna was the leading import for the fourth quarter of 1993 at 26,600 st, followed closely by albacore at 24,900 st (Table 5). The leading supplier was Taiwan, with 33% of the import market, followed by France and Japan, with 17% and 9% of the market, respectively. The western Pacific Ocean was the main source of all three important tuna species (Table 6): skipjack tuna (34,100 st), yellowfin tuna (11,400 st) and albacore (11,300 st).

Contract prices for domestically caught tuna delivered to U.S. canners in the fourth quarter of 1993 were considerably higher than the 1992 fourth quarter prices for all categories of fish (Table 7). Maximum prices (not adjusted for inflation) have increased in each of the past five quarters, reversing a downward trend that started in 1988. Between the first quarter of 1988 and the fourth quarter of 1992, prices fell

**Table 4.** U.S. cannery receipts (st) of domestic and imported tuna by species for all four quarters of 1992, 1993 and the recent (1988-92) averages. Totals may not add due to rounding.

| Jan-Dec | Source | Albacore | Skipjack | Yellowfin[1] | TOTAL |
|---|---|---|---|---|---|
| 1992 | DOMESTIC | 6,900 | 163,200 | 47,900 | 218,000 |
| | IMPORTED | 98,000 | 83,100 | 33,000 | 214,100 |
| | TOTAL | 104,900 | 246,300 | 80,900 | 432,000 |
| 1993 | DOMESTIC | 7,500 | 156,200 | 47,800 | 211,500 |
| | IMPORTED | 91,100 | 75,900 | 41,200 | 208,200 |
| | TOTAL | 98,600 | 232,100 | 89,000 | 419,700 |
| 1988-92 Average | DOMESTIC | 6,600 | 123,400 | 81,300 | 211,300 |
| | IMPORTED | 90,500 | 98,400 | 54,700 | 243,600 |
| | TOTAL | 97,100 | 221,800 | 136,000 | 454,900 |

[1]May include a small amount of bigeye tuna.

**Table 5.** U.S. cannery imports (st) of tuna by species and source (flag of catcher vessel) for the fourth quarter of 1993. Totals for the fourth quarter of 1992 are given for comparison. Note that the flag of the catcher vessel does not necessarily reflect the country of export or point of shipment. Totals may not add due to rounding.

| VESSEL FLAG | 1993 | | | | 1992 |
|---|---|---|---|---|---|
| | Albacore | Skipjack | Yellowfin[1] | TOTAL | TOTAL |
| ECUADOR | 0 | 900 | 500 | 1,500 | 200 |
| F.S. MICRONESIA | 0 | 700 | 600 | 1,300 | 2,100 |
| FRANCE | 400 | 6,400 | 4,700 | 11,500 | 6,100 |
| GHANA | 0 | 4,100 | 1,900 | 5,900 | 2,200 |
| JAPAN | 6,800 | 0 | 0 | 6,800 | 5,200 |
| MOROCCO | 0 | 900 | * | 900 | 0 |
| PANAMA | 300 | 1,500 | 300 | 2,100 | 800 |
| PORTUGAL | 1,200 | 0 | 0 | 1,200 | 1,300 |
| SOLOMON ISLANDS | 0 | 600 | 900 | 1,400 | * |
| SOUTH KOREA | 300 | 700 | 1,500 | 2,500 | 8,700 |
| SPAIN | 400 | 1,400 | 0 | 1,800 | 1,300 |
| TAIWAN | 14,900 | 4,600 | 2,400 | 21,900 | 20,500 |
| USA | 0 | 1,800 | 300 | 2,100 | 100 |
| VANUATU | 0 | 1,000 | 1,400 | 2,300 | 0 |
| VENEZUELA | 0 | 1,200 | 100 | 1,200 | 0 |
| UNKNOWN | 200 | 500 | 400 | 1,100 | 1,100 |
| OTHER | 500 | 400 | 200 | 1,100 | 1,100 |
| TOTAL | 24,900 | 26,600 | 15,100 | 66,600 | 50,800 |

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

approximately 40%; prices now stand approximately 12% below their 1988 levels.

U.S. imports of canned tuna packed in water totaled 20,700 st for the fourth quarter of 1993, down 37% from 1992. For all four quarters of 1993, imports of canned tuna totaled 107,700 st, down 34% from the previous year.

## U.S. TUNA FISHERIES UPDATE

### EASTERN PACIFIC PURSE SEINE FISHERY

During the period January through March 1994, 13 U.S. purse seiners participated in the eastern tropical Pacific tuna fishery and caught an estimated 4,800 metric tons (mt) of yellowfin tuna and 3,400 mt of skipjack tuna (Figure 1). The yellowfin tuna catch was down 4% from the 1993 catch (5,000 mt), and the skipjack tuna catch was down 36% from the 1993 catch (5,300 mt). The fleet continues to be affected by "dolphin-safe" policies and is concentrating its effort on skipjack and yellowfin tuna not associated with dolphins. Nonetheless, the 1994 U.S. allowable quota of 114 dolphin mortalities, established by the U.S. International Dolphin Conservation Act, was reached on February 7. Therefore, the taking of dolphins by U.S. tuna purse seiners in the eastern tropical Pacific is prohibited from February 8 through the remainder of the year. In practice, this will affect only the one seiner that had been making sets on dolphins and remains under the U.S. flag.

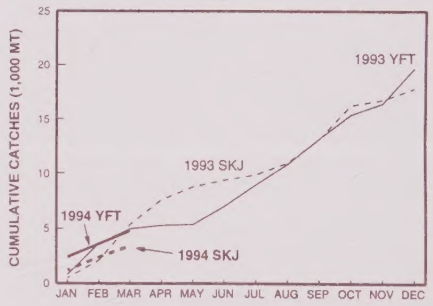


**Figure 1.** Cumulative tuna catches, by month, for the U.S. eastern Pacific purse seine fishery, 1993 and 1994.

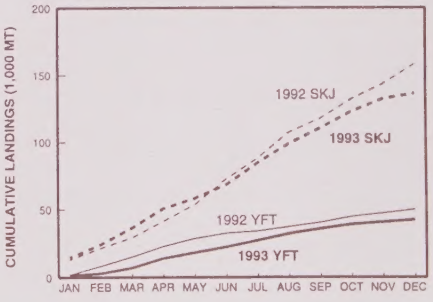


**Figure 2.** Cumulative tuna landings, by month, for the U.S. western tropical Pacific purse seine fishery, 1992 and 1993.

### WESTERN PACIFIC PURSE SEINE FISHERY

In 1993, 42 U.S. purse seiners registered to fish in the western

Table 6. Receipts (st) of tuna by U.S. canneries by species and area of capture for the fourth quarters of 1992 and 1993. Totals may not add due to rounding.

| SOURCE | Albacore | | Skipjack | | Yellowfin[1] | |
|---|---|---|---|---|---|---|
| | 1992 | 1993 | 1992 | 1993 | 1992 | 1993 |
| **E. ATLANTIC OCEAN** | | | | | | |
| DOMESTIC | 0 | 0 | 0 | 0 | 0 | 0 |
| IMPORTED | 6,800 | 6,700 | 1,800 | 9,200 | 700 | 3,700 |
| TOTAL | 6,800 | 6,700 | 1,800 | 9,200 | 700 | 3,700 |
| **W. ATLANTIC OCEAN** | | | | | | |
| DOMESTIC | 0 | 0 | 0 | 0 | 0 | 0 |
| IMPORTED | 3,700 | 3,200 | * | 1,200 | 100 | 100 |
| TOTAL | 3,700 | 3,200 | * | 1,200 | 100 | 100 |
| **E. PACIFIC OCEAN** | | | | | | |
| DOMESTIC | 1,600 | 2,400 | 15,100 | 4,200 | 3,000 | 5,100 |
| IMPORTED | 0 | 0 | 200 | 2,000 | 0 | 900 |
| TOTAL | 1,600 | 2,400 | 15,300 | 6,200 | 3,000 | 6,000 |
| **W. PACIFIC OCEAN** | | | | | | |
| DOMESTIC | 300 | 200 | 35,700 | 26,000 | 7,900 | 5,600 |
| IMPORTED | 11,600 | 11,100 | 12,500 | 8,100 | 3,700 | 5,800 |
| TOTAL | 12,000 | 11,300 | 48,200 | 34,100 | 11,600 | 11,400 |
| **INDIAN OCEAN** | | | | | | |
| DOMESTIC | 0 | 0 | 0 | 0 | 0 | 0 |
| IMPORTED | 3,500 | 3,900 | 4,000 | 6,100 | 2,100 | 4,600 |
| TOTAL | 3,500 | 3,900 | 4,000 | 6,100 | 2,100 | 4,600 |

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

Table 7. Contract price ranges (U.S. $ per st) for skipjack and yellowfin tuna for delivery to U.S. canneries in American Samoa and Puerto Rico by U.S. vessels arriving from trips in the fourth quarters of 1992 and 1993.

| SIZE CLASS (lbs.) | SKIPJACK | | YELLOWFIN | |
|---|---|---|---|---|
| | 1992 | 1993 | 1992 | 1993 |
| <3 | 175-190 | 440-540 | 175-190 | 440-540 |
| 3 to 4 | 375-390 | 640-740 | 375-390 | 640-740 |
| 4 to 7.5 | 570-585 | 835-935 | 570-585 | 835-935 |
| 7.5 to 20 | 620-635 | 885-985 | 630-645 | 895-995 |
| >20 | -- | --- | 750-765 | 1,015-1,115 |

tropical Pacific under the South Pacific Tuna Treaty. This fleet landed an estimated 135,900 mt of skipjack tuna and 42,300 mt of yellowfin and bigeye tuna (Figure 2). The skipjack tuna landings were down 14% from the 1992 landings for the same period (158,000 mt) and the yellowfin/bigeye tuna landings were down 15% (from 50,000 mt). Preliminary data for early 1994 indicate that 24 U.S. purse seiners had landed 26,200 mt of skipjack tuna and 4,000 mt of yellowfin and bigeye tuna through the end of April. *(Report provided by Doug Prescott, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

## NORTHERN PACIFIC ALBACORE FISHERY

The 1994 north Pacific albacore troll season will likely begin in early June northwest of Hawaii in the areas near Midway island, and west of the international dateline with more than 20 U.S. vessels participating. Many of theses vessels are currently heading for Hawaii from American Samoa and the U.S. west coast. Two vessels will carry biologists who will be tagging albacore and collecting fishing information for the SWFSC. Several more biologists will likely accompany trips later in the season.

*(Report provided by John Childers, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

## SOUTHERN PACIFIC ALBACORE FISHERY

The 1993-94 south Pacific albacore fishery began in late December 1993 and concluded in April. A total of seven U.S. vessels participated in the fishery. Very little news has been received so far from the fleet. However, preliminary indications show slightly better catches than the previous season which produced a record low of 1,028 mt for the U.S. troll fishery.

*(Report provided by John Childers, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

## ATLANTIC BLUEFIN TUNA FISHERY

Highlights of the 1994 U.S. Atlantic bluefin tuna regulations, based on ICCAT recommendations and published in the Federal Register on April 11, 1994, include:

(1) Quota allocations by permit category are maintained at the 1992-93 level--reserve (18 mt), general (531 mt), harpoon boat (53 mt), purse seine (301 mt), southern longline incidental catch (86 mt), northern longline incidental catch (23 mt), "other" incidental catch (4

mt), angling (219 mt, of which no more than 99 mt may be school bluefin of which 46.5 mt may be landed south of 38 degrees 47 minutes N. latitude and 52.5 mt may be landed north of 38 degrees 47 minutes N. latitude).

(2) The line designating the northern and southern management areas for the incidental category is adjusted from 36 degrees to 34 degrees N. latitude.

(3) The directed fishery minimum poundage requirement of landing one bluefin tuna in the southern management area for vessels permitted in the incidental category is decreased to 1,500 pounds during the months of January through April, and is increased to 3,500 pounds during the months of May through December.

As of May 15, 1994, private vessels will be required to possess, on board, an angling category permit in order to catch and retain Atlantic bluefin tuna between 26 inches and less than 70 inches straight fork length. Charter/party vessels that fish for this size range of Atlantic bluefin tuna have been required to possess an angling category permit since September 15, 1993. Angling category permits authorize anglers on private and charter/party vessels to catch and land school, large school, and small medium size class bluefin tuna within established quotas and daily trip, bag and vessel limits. To receive an application for an angling category permit, contact the NMFS permit office at 508-281-9305.

A summary of cumulative 1994 U.S. Atlantic bluefin tuna landings as of April 22 is given in Table 8.

*(Report provided by Kevin B. Foster, NMFS Northwest Region, Gloucester, MA)*

**Table 8.** U.S. commercial landings of Atlantic bluefin tuna for 1993. (About 99.1 percent of the 1993 U.S. commercial quota was taken.)

| Category | No. of Fish | Avg. Wt. (lbs.) | Gross Wt. (mt) | Quota (mt) |
|---|---|---|---|---|
| Incidental Catch | 146 | 483.3 | 32.01 | 113 |
| Longline | 145 | 485.3 | 31.92 | 109 |
| North | 20 | 309.6 | 2.81 | 23 |
| South | 125 | 513.5 | 29.11 | 86 |
| Other | 1 | 188.0 | 0.09 | 4 |

# REPORTS

*Editor's note: Original reports are published as a service to subscribers and may not represent the views of the NMFS. Readers should contact the authors of reports for details, if needed.*

## REVIEW OF THE U. S. NORTH PACIFIC ALBACORE FISHERY, 1991-1993

*David B. Holts and Al Coan, Southwest Fisheries Science Center, P.O. Box 271, La Jolla, CA 92038*

The U. S. albacore troll fleet consists mainly of vessels operating out of Hawaii and the West Coast. The number of vessels fishing albacore varies tremendously from year to year. Many troll vessels fish albacore exclusively; south Pacific in the winter and north Pacific in the summer and fall. Other vessels only fish albacore seasonally in the north Pacific and switch to participate in alternate fisheries.

Since the development of the south Pacific albacore fishery, a number of vessels fish in the south Pacific and return to Hawaii in April and May to re-provision for the north Pacific season. This allows them the opportunity for an early start fishing in the mid-north Pacific while vessels departing from West Coast ports usually take longer to reach the north Pacific fishing area and begin fishing in June-July.

Catches from 1977 through 1992 averaged 6,300 mt but had not exceeded 5,000 mt since 1985. Catch for 1991 was the lowest on record at 1,828 mt while the 1992 catch increased to 4,572 mt and the 1993 catch increased further to at least 5,800 mt. Albacore delivered to Terminal Island, California, in 1993 was priced at $1,950 to $2,100 per mt. Albacore less than 4 kg was worth only $1,480 per mt.

Areas of greatest annual catch had optimum environmental factors for concentrating albacore, including: sea surface temperatures, strength of boundary features in the North Pacific Transition Zone, development of frontal structures, upwelling or the occurrence of an El Niño and related events. Highest catch rates in 1991 occurred in August, 900 to 1,300 nm off southern Oregon. Catches in 1992 were highest in August and occurred within 200 nm of the Oregon-Washington coastline where a strong surface front had developed along the 15°C isotherm.

In 1993 most of the fleet moved from the mid-Pacific eastward to more coastal areas as the season progressed. The 1993 season was marked by a lack of good frontal development which may have limited large concentrations of albacore, although fair catches were made into late October and early November when the fishery ended off northern California.

Annual CPUE (average number of albacore caught per day fishing [F/D], by 1° squares) was 36 F/D in 1991, 54 F/D in 1992 and 35 F/D in 1993. These values are typical of those recorded over the past decade for the fishery.

The average sizes of albacore observed in recent years are similar to averages reported in historical data. Troll-caught albacore measured by port samplers and on-board biologists totaled 24,000 in 1991, 41,000 in 1992 and 11,000 in 1993. Average overall length (fork length) recorded was 65.1 cm (5.7 kg) in 1991, 63.7 cm (5.4 kg) in 1992 (low-

est reported since 1955) and 69.5 cm (7.0 kg) in 1993. The proportions of 4-year-old albacore in the 1990, 1991, and 1993 landings were much greater than in the 1992 landings.

## DOLPHIN MORTALITY IN TUNA PURSE SEINE FISHERY DECLINES IN 1993

*Alan R. Jackson, Southwest Fisheries Science Center, P.O. Box 271, La Jolla, CA 92038*

The estimated number of dolphins killed in the U.S. eastern tropical Pacific tuna purse seine fishery in 1993 was 115, down 74% from the estimated 1992 kill of 439 dolphins. The 1993 dolphin kill was the lowest recorded for the U.S. fleet since marine mammal regulations were applied in 1972.

The number of dolphins killed annually by the U.S. fleet has decreased dramatically since 1989 when it is estimated that over 12,000 dolphins were killed (Figure 3). One reason for the decrease in dolphin kill over the past four years is the reduction in fishing effort on dolphins, a consequence of the U.S. tuna canners' decision in April of 1990 to purchase only "dolphin safe" tuna. In 1989, 29 U.S. vessels made nearly 3,500 sets on dolphins, or 120 dolphin sets per vessel; in 1993 only 3 vessels made a total of 201 sets on dolphins, or 67 dolphin sets per vessel (Figure 4).

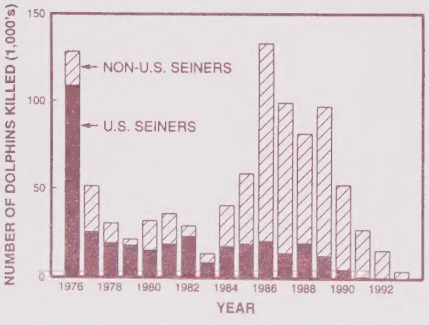


**Figure 3.** The estimated number of dolphins killed annually by the U.S. and non-U.S. eastern tropical Pacific tuna purse seine fleets, 1976-1993.

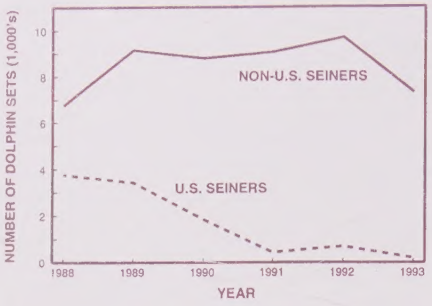


**Figure 4.** The number of dolphin sets made annually by the U.S. and non-U.S. eastern tropical Pacific tuna purse seine fleets, 1988-1993.

Another reason for the reduced dolphin mortality is the improvement by the fishermen in releasing live dolphins from the net. The dolphin kill per set in 1993 was 0.6, compared to 0.7 in 1992, 2.5 in 1991, 2.8 in 1990 and 3.6 in 1989 (Figure 5). The percentage of dolphin sets in which no dolphins were killed increased from 60% in 1989 to 80% in 1993. The percentage of high-kill sets (more than 15 dolphins killed) decreased from 5% in 1989 to less than 1% in 1993.

Improvement in dolphin kill rates by non-U.S. seiners parallels that of the U.S. fleet, according to data collected by the Inter-American Tropical Tuna Commission. The estimated dolphin kill for the non-U.S. fleet dropped from 84,403 in 1989 to about 3,900 in 1993. Unlike the U.S. fleet, however, this lower dolphin kill is due almost entirely to successful dolphin releases and not to a reduction in the number of sets on dolphins (Figure 4). The kill per set rate for the non-U.S. fleet fell from 9.3 in 1989 to 0.6 in 1993, a phenomenal accomplishment (Figure 5).

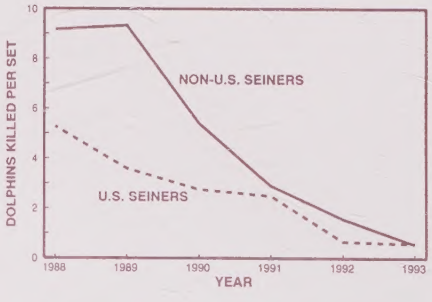


**Figure 5.** The estimated annual average number of dolphins killed per dolphin set made by the U.S. and non-U.S. eastern tropical Pacific tuna purse seine fleets, 1988-1993.

*An abstract from a recently published paper written by a SWFSC scientist is presented in this space to announce its availability and to report results of tuna research conducted by Center staff.*

## RECENT SWFSC PUBLICATION: "EFFECTS OF ENTANGLEMENT AND ESCAPE FROM HIGH-SEAS DRIFTNETS ON RATES OF NATURAL MORTALITY OF NORTH PACIFIC ALBACORE, *THUNNUS ALALUNGA*"

*R. W. Brill[1] and D. B. Holts[2] Published in U.S. Fishery Bulletin 91:798-803*

Observers were placed aboard U.S. North Pacific albacore troll vessels between 1990 and 1993 to observe the incidence of damage to fish caused by interactions with high-seas drift nets. Differences in fitness were examined through weight-length ratios, otolith to weight ratios, RNA:DNA ratios, and analysis of red blood cells as an indicator of bacterial infection. Results indicate that injuries, or infection caused by injuries, from drift net encounters probably do not increase natural mortality in albacore that survived long enough to begin feeding and thus become vulnerable to the U. S. albacore fishery.

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## 45TH TUNA CONFERENCE HELD AT LAKE ARROWHEAD

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The 45th Tuna Conference will be held at the University of California's Lake Arrowhead Conference Center, May 23-26. The theme for the Conference, "Movement and Migration", has attracted an unusually large number of papers. In all there are 46 presentations, 26 of which are included in a session on distribution, movement, and migration. The remaining presentations are distributed in sessions dealing with the tuna-dolphin situation, biological aspects, and activities and status of fisheries. Nine of the presentations are poster displays. A copy of the conference proceedings may be obtained by contacting the Tuna Conference cochairmen Pierre Kleiber or Rand Rasmussen.

Included in the conference is a special session on archival tags. The archival tag concept is rapidly emerging into reality and with it a powerful tool for studying migration of highly migratory species. An archival tag is designed around a microprocessor that controls acquisition and storage of data from sensors measuring a field of parameters as the fish migrates. This special session will be to review progress in development of archival tags and for round-table discussion on future directions.

Two scholarships are being awarded this year for student papers. The recipient of the Tuna Conference scholarship is Daniel Scoles of the Virginia Institute of Marine Sciences for his paper on the phylogeography of mackerels using mitochondrial DNA. The Manuel Caboz Memorial Scholarship recipient is Laurent Dagorn, a student at the Ecole Nationale Superieure Agronomique de Rennes working at the Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM), who will present results of his theoretical studies on tuna movement and schooling behavior.

The annual Tuna Conference is sponsored jointly by the Inter-American Tropical Tuna Commission and the Southwest Fisheries Science Center (SWFSC), National Marine Fisheries Service. This year the host organization is the SWFSC. Additional organizations contributing to events at the 45th Conference are the Japan Tuna Fisheries Cooperative Association (Nikkatsuren), UCLA Lake Arrowhead Conference Center, Northwest Marine Technology, Inc., and the United States Tuna Foundation.

# RECENT DEVELOPMENTS IN TUNA FISHERIES

*Editor's note: The following news items, compiled from fishery trade and industry journals, newspapers and NMFS reports, are provided only as a service to our readers. The NMFS does not guarantee their accuracy.*

## UNITED STATES

**New Pacific Bluefin Tuna Rules--**The National Marine Fisheries Service is preparing regulations that will assist the International Commission for the Conservation of Atlantic Tunas (ICCAT) to account for all bluefin tuna entering into commerce or international trade. The new regulations will bring the United States into compliance with the 1992 recommendation of ICCAT and the Atlantic Tunas Convention Act (ATCA).

The new regulations would, for the first time, require a federal permit for all dealers that export Pacific bluefin tuna; preparation and submission of a biweekly report on exports of Pacific bluefin tuna by permitted dealers; and affixation of an identification tag to fresh or individually frozen Pacific bluefin tuna sold for export. Frozen bulk shipments of Pacific bluefin tuna will not be tagged but must be fully documented.

Beginning June 1, 1994, ICCAT member nations, such as Japan, have agreed not to accept shipments of Pacific bluefin tuna that are not properly documented as outlined above. Pending the publication of new Pacific bluefin tuna regulations, west coast and Pacific island businesses may obtain export permits and tags through the NMFS, Southwest Region. Interested dealers are invited to contact Ms. Patricia Donley, (310) 980-4033, for further information and application forms. There is no charge for the permit, which will be valid for the balance of the calendar year. (NMFS, Southwest Region, May 1994)

**Pacific Pelagic Management Stalls--**A bid by the Hawaii-based Western Pacific Fishery Management Council (WPFMC) to assume control of all pelagic species in the Pacific--swordfish, tuna, marlin, wahoo and mahi-mahi--has stalled until at least October, to the relief of many California fishing groups. The WPFMC request was delayed until the Pacific Fishery Management Council (PFMC) and North Pacific Fishery Management Council can review the matter. Consent by both councils is required for the request to be approved. The PFMC will reconsider the issue at its October meeting in Milbrae, California. "Essentially we're looking to manage pelagic species in the Pacific by collecting more data and centralizing biological information," explained WPFMC director Edwin Ebisui. "For example, owing [to] the decline of swordfish stocks on the east coast and in the Caribbean, we're seeing a lot more fishing pressure in the Pacific. We need a way to monitor and manage these fisheries, or they'll be a short-term proposition at

best." Ebisui says the WPFMC is also seeking ways to track the efforts of a small, emergent fleet of California-based swordfish longliners, which operate in international waters, labor under few regulations and generate little biological data. The California Gillnetters Association and Western Fishboat Owners Association (primarily albacore jig fishermen) oppose the WPFMC plan. "We've spent 15 years working with California's legislators and [California Department of] Fish and Game to craft fair, biologically sound management schemes for our drift net swordfish fleet," insists Tony West, CGA vice president. "The last thing we need is a sportfish-heavy council thousands of miles away making decisions about our fishery." (*National Fisherman*, May 1994)

**U.S. ETP Fleet Prohibited from Setting on Dolphins**--The U.S. eastern tropical Pacific tuna purse seine fleet was prohibited from setting on dolphins for the remainder of the year when the annual allowable quota of 114 dolphins was reached on February 8, 1994. Earlier, on January 27, 1994, the U.S. Court for the Northern District of California ordered NMFS to prohibit immediately the incidental taking of any of the northeastern stock of offshore spotted dolphins in the ETP under the American Tunaboat Association permit. Pursuant to the court order, NMFS advised U.S. vessels fishing under the ATA permit that setting on the northeastern offshore spotted dolphin was prohibited. On February 4, 1994, those vessels were further advised that the take of all offshore spotted dolphin was prohibited effective immediately, under provisions of the court order requiring NMFS to minimize the take of northeastern offshore spotted dolphin. NMFS is developing regulations pursuant to the court order to implement these new elements of its marine mammal program. NMFS will also notify affected foreign harvesting nations of the changes to the U.S. marine mammal program, as required by the court order. (NMFS, February 1994)

## WESTERN PACIFIC OCEAN

**Market for Tuna Eyeballs**--Recent scientific research has changed the Japanese public's view of visually unappealing fish parts, such as eyeballs and fish guts. Research has shown that these fish parts are high in unsaturated fatty acids such as DHA and EPA, nutrients claimed to improve brain functions and reduce cholesterol. Most fish, including tuna, contain DHA. The result has been the appearance on supermarket shelves of such delights as canned or vacuum-packed fish eyeballs. Among the most enthusiastic buyers of this new range of DHA-related fish products have been the parents of school-age children and students preparing for university entrance examinations. Particularly popular items include tuna eyeballs. Demand was high when these products first hit the shelves but waned because consumers had no idea how to prepare them. Interest has been reignited recently with the launch of such products as precooked tuna eyeballs. Maruni Co. of Tokyo is marketing a pair of precooked tuna eyeballs for about $28. (*World Fishing*, April 1994)

**Philippine Export of Canned Tuna**--Philippine exports of canned tuna during the first five months of 1993 amounted to 6,900 mt, down by 6.6% compared to the same period the previous year. The two main buyers in 1993 were Canada with 1,780 mt and the United States with 1,250 mt. Exports in 1993 grossed $3.7 million, compared to $2.3 million in 1992. (INFOFISH *Trade News*, March 3, 1994)

**South Pacific Tuna Fishery**--Competition among small Asian tuna vessels in the South Pacific is intensifying. Vessels from Japan (100), China (240), and Taiwan (500) are fishing in a time of rising operational costs, falling tuna

## UPCOMING TUNA MEETINGS

(Organizer; meeting type: sci=science, adm=administration)

- MAY 23-26. 45th Tuna Conference. Lake Arrowhead, California. (SWFSC; sci)
- JUN 7-9. Annual Meeting of the Inter-American Tropical Tuna Commission. Cumana, Venezuela. (IATTC; adm)
- AUG 5-8. 7th Meeting of the Standing Committee on Tuna and Billfish. Koror, Palau. (South Pacific Commission; sci)
- AUG 9-11. Meeting of the Western Pacific Yellowfin Tuna Research Group. Koror, Palau. (SPC; sci)
- OCT 31-NOV 4. Meeting of the Species Group of the Standing Committee on Research and Statistics (SCRS). Madrid, Spain. (International Commission for the Conservation of Atlantic Tunas; sci)
- NOV 7-11. Meeting of the Standing Committee on Research and Statistics. Madrid, Spain. (ICCAT; sci)
- NOV 14-18. Annual Meeting of the International Commission for the Conservation of Atlantic Tunas. Madrid, Spain. (ICCAT; adm)
- DEC 5-9. Multilateral High-Level Conference on South Pacific Tuna Fisheries. Honiara, Solomon Islands. (Forum Fisheries Agency; adm)
- DEC 11-14. International Symposium on Pacific Swordfish. Ensenada, Mexico. (Ensenada Center of Scientific Investigations and Higher Education (CICESE) and SWFSC; sci)
- JAN 23-31. Second FAO Expert Consultation on Interactions of Pacific Tuna Fisheries. Shimizu, Japan. (FAO; sci)

prices, and declining tuna stocks. As a result, Japanese companies are finding it increasingly difficult to compete with their Chinese and Taiwanese counterparts, and are considering a suspension of their South Pacific fishing. Chinese tuna fishing in the South Pacific increased dramatically in 1993. China reportedly operates 188 vessels in Palau that supplied 3,500 mt of fresh tuna to the Japanese market in 1993. The remainder of the Chinese South Pacific tuna fleet is based in the Micronesian ports of Truk (23 vessels), Yap (20 vessels), and Pohnpei (10 vessels). (NMFS from *Nikkan Suisan Keizai Shinbun*, December 1, 1993)

**Chuuk Awaits Purse Seiners--** Chuuk State purchased three purse seiners to provide tuna to the planned tuna cannery on Tonoas (formerly Dublon) Island in Chuuk Lagoon. The boats, to be managed by a San Diego, California-based businessman, will have American officers and Chuukese crewmen. Chuuk's tuna cannery project is the result of an idea first raised by a group of American tuna industry representatives as a possible large-scale enterprise for the development of the Federated States of Micronesia. The cannery will have the capability to produce about 100 mt of tuna a day and will employ about 1,000 workers. (U.S. Dept. of Commerce, February 10, 1994)

**Palau to Export Fresh Tuna To Japan--**Japan will begin to import fresh tuna from Palau by air in April 1994. IASS, a Japanese trading company, hosted a seminar for prospective clients in Tokyo on February 16, 1994, to explain its fresh tuna import distribution system. IASS is expected to import approximately 500 mt per month through Tokyo's Narita Airport. Depending on market demand, IASS plans to expand distribution through Osaka and Nagoya airports. In Palau, the Japanese-owned Palau International Traders Incorporated (PITI) and Palau-owned Palau Marine Industries Corporation (PMIC) are working cooperatively on this project. PITI is a wholly owned subsidiary of IASS, sharing the same company president. Both PITI and PMIC operate their own transport planes and fishing facilities. The two companies will cooperatively store tackle and bait and jointly use fishing ports and transport planes. They will also begin management of about 300 small Chinese tuna vessels based in Palau. When PITI operated independently, its sales to the Japanese tuna market reached 4,000 mt per year, however, with IASS as its parent company sales are expected to increase. (NMFS from *Nikkan Suisan Keizai Shinbun*, February 21, 1994)

## EASTERN PACIFIC OCEAN

**Mexico Strengthens Dolphin Regulations--**The Mexican Fisheries Secretariat (SEPESCA) has issued new regulations further reducing the maximum incidental dolphin kill rate permitted for Mexican tuna fishermen. The decree, which was published in Mexico's Federal Register (*Diario Oficial*) on January 21, 1994, reduces the maximum incidental dolphin mortality rate from 2.0 to 1.5 dolphin kills per set for the first six months of 1994. The new limit applies to Mexican-flag tuna purse seiners (363 GRT and above) operating in the Mexican EEZ, territorial sea, and international waters and EEZs of other countries within the eastern tropical Pacific. (NMFS from SEPESCA, February 3, 1994)

## INDIAN OCEAN

**License Rush in the Indian Ocean--**Tuna ship operators have rushed to secure licenses for fishing inside the fisheries conservation and management zone of the British Indian Ocean Territory (Chagos Archipelago) south of the Maldives. This follows the recent near-record penalty of $1.7 million paid by the owners of the Japanese sashimi longliner *Sumiyoshi Maru No. 16*, caught fishing illegally inside the zone. Just five Spanish purse seiners had been licensed to experimentally fish these waters, alongside mainly Taiwanese longliners, at the beginning of December. By the end of the month the number of purse seiners had shot up to 44, and in the period up to December 1993, 32 Taiwanese longline licenses had been issued. Top Spanish- and French-owned purse seiners with mainly Seychelles-based fleets have led the rush. (*Fishing News International*, February 1994)

**India Moves on to Joint Ventures--**India has decided to phase out the chartering of foreign deep-sea fishing vessels by Indian entrepreneurs. Chartering had been permitted since 1981 for fishing operations in India's economic zones primarily to familiarize Indian fishermen with deep-sea catching methods. The new approach will be through joint ventures with foreign companies. The government has not been approving requests to extend charter permits beyond January 1. Only those companies which got charter permits before December 1987 were being entitled to permits for one last limited period. The Tamil Nadu Fisheries Development Corporation will soon be entering the tuna fishing business. Its plan to buy a Japanese vessel for $3.8 million has been sanctioned by the government. (*Fishing News International*, February 1994)

**Iceland-India Joint Venture--** Icelandic Freezing Plants Corporation and Tikoo Corporation have established a joint-venture operation in India to catch and process 50,000 mt of tuna annually. The tuna will be harvested within India's 200-mile exclusive economic zone. Indian scientists believe as much as 200,000 mt of tuna could be harvested in the country's EEZ on a sustainable basis. The operation will begin with one to two vessels. IFPC will provide the technical processing expertise and will oversee quality control and marketing. Plans

call for the construction of a new tuna cannery to begin in the next few months. (NMFS from *News from Iceland*, January 1994)

**Japan-South African Tuna Talks**--Representatives from the Fisheries Agency of Japan and the South African Fisheries Bureau met February 16-17, 1994, in Cape Town to discuss Japanese access to South Africa's tuna fisheries in 1994. Current South African access fees are $1,400 per vessel, but Japan hopes to obtain a reduced fee of $1,000 and to maintain its current fleet size of 90 vessels operating in South African waters. (NMFS from *Nikkan Suisan Keizai Shinbun*, February 10, 1994)

**IOTC Agreement Open for Accession**--The Agreement for the Establishment of the Indian Ocean Tuna Commission passed the final hurdle on November 25, 1993, when it was approved by the 27th Session of the FAO Conference. Membership in IOTC will be open to coastal states of the Indian Ocean which are members of FAO or, on approval of a two-thirds majority of its members, of the UN, its Specialized Agencies, or the IAEA. It will also be open to states or Associate Members of FAO whose vessels fish for tuna in the Indian Ocean. The objective of IOTC will be to promote cooperation among its members, through appropriate management and sustainable development activities, in the conservation and optimum utilization of tuna stocks in its area of competence. The IOTC Agreement will enter into force when 10 parties have acceded. Because the Agreement has been so thoroughly discussed, it is expected that this number will be reached soon. The activities at present undertaken by the Indo-Pacific Tuna Programme will be taken over by IOTC when it becomes operational and technical staff have been appointed. No extension of IPTP is envisaged beyond the end of 1995, so that IOTC will have to be running by then. (*Indian Ocean Tuna News*, March 1994)

**French Record Catches**--The French tropical tuna fleet beat its previous records in 1993 with a total catch of 162,600 mt (+12.2%) according to *Le Marin*. 72,600 mt came from the Atlantic and 90,000 mt from the Indian Ocean. The top vessel, with 8,000 mt, was the Gueolec, an 82-meter seiner from COBRECAF. She was also the top vessel last year with 8,000 mt. The newer vessels, two or three years old, held all the top places. The tonnage landed generated a turnover of $125 million, compared to $80 million the previous year. (INFOFISH *Trade News*, February 17, 1994)

## EASTERN ATLANTIC OCEAN

**Shortage of Canning Material**--With fewer suppliers than their competitors, West African tuna canners are facing a major shortage of raw material. The problem became even more acute during the recent world shortage of tuna and with prices driven higher by an increased demand for tuna loins in Europe. The problem for West African canners is compounded by their effort to qualify for duty-free status in the European Union which insists that canners must use fish caught by EU, African, Caribbean or Pacific Island vessels along with other requirements. These requirements are being rigorously enforced, as were similar EU requirements of operations in the Ivory Coast and the Seychelles. As a result of this ruling, canners had to turn down offers of raw material from Japan, South Korea and Mexico. West African canners are also facing growing competition from Latin American canners which are being provided temporary duty-free status by EU to help them in their battle against illicit drug production. (INFOFISH *Trade News*, February 17, 1994)

**French Driftnetters Issue Warning**--Driftnetting must be allowed to continue in the French albacore fisheries of the northeast Atlantic, or French fishermen could revolt in protest, warns the Albacore and Bluefin Tuna Commission (CTBR) of France's National Committee of Marine Fisheries and Mariculture (CNPMEM). "If it wants to avoid a new revolt in the French ports of the Atlantic coast ... the Council of the European Union must by April establish a legal framework allowing for a reinforced, sustainable and responsible use of drift nets in the northeast Atlantic albacore fishery," said the CTBR. (*Fishing News International*, March 1994)

## WESTERN ATLANTIC OCEAN

**Canadian Longliners off Bermuda**-- The Canadian Department of Fisheries and Oceans is investigating activities of six Nova Scotia longliners fishing swordfish and tuna in the waters off Bermuda, Brian Tobin, Minister of Fisheries and Oceans, announced on March 10, 1994. The Minister is committed to ensuring that Canada complies with its obligations as a member of the International Commission for the Conservation of Atlantic Tunas. "Although the Bermudian government licensed these vessels to fish for tuna and swordfish in its waters in 1994, I will not condone fishing activities by Canadians fishing in our waters or abroad, that may jeopardize the existing management regime," said Mr. Tobin. The six Nova Scotia longliners have been advised formally that their activities in Bermuda reduce the quota to be fished later this year by other Canadian-flagged vessels in Canadian waters. Mr. Tobin said that the government is proceeding on an urgent basis to amend its fisheries regulations to ensure effective control over Canadian-flagged vessels on the high seas beyond Canada's 200-mile limit. "However, in the interim, we are seeking Bermuda's cooperation in controlling the fishing activities of Canadian-flagged vessels," he said. (Canadian Dept. of Fisheries and Oceans, March 10, 1994)

**Bahamians Ban Longlining--** Bahamian lawmakers, in December 1993, unanimously passed legislation that stops longline fishing in Bahamian waters and makes possession of longline gear in those waters punishable by a fine of not less than $50,000 and not more than $100,000, confiscation of gear and vessel, imprisonment for one year, or any combination of these penalties. Although the Fisheries Resources Act of 1993 provides that the Governor General of the Bahamas can issue an exceptional permit, Bahamian Prime Minister Hubert Ingraham has said that in practice no such permit will be issued. The longline prohibition resulted from a vigorous campaign by sport fishermen and conservationists who convinced lawmakers, concerned with an annual multimillion-dollar sport-fishing industry, that the gear was deadly on marine resources and unprofitable to the ecotourism interests of the Bahamas. Said John Spence, executive director of the Billfish Foundation, "I showed ... that a tagged and released marlin generates almost $23,000 for the Bahamian economy ... [which] if killed by a longliner would only generate about $19." (*National Fisherman*, April 1994)

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